THE DECLINE OF THE INDIGENOUS MACROLEPIDOPTERA OF ABBOT'S WOOD, EAST SUSSEX

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Whilst recording the demise of various native Lepidoptera for the Nature Conservancy Council, it was immediately apparent that a significant number of species had been lost from Abbot's Wood, a favourite haunt of the Victorian collector. The woodland was known to many if not to most of the great Lepidopterists of the past century. So fine were the stands of mature Oaks, and how common were the specialities, that Thomas Salvage ran a Butterfly Farm on its outskirts, trading on the abundant material contained therein. The author having spent most of his entomologically 'formative' years collecting in the Eastbourne area, feels compelled therefore to put pen to paper concerning the loss of species that this woodland has suffered.

The woodland is approximately 1½ miles square in area, and situated just north-west of Polegate. Unlike many modern woodlands, there has been no overall change in its size, although the surrounding environs have seen much agricultural improvement. However, there have been considerable changes within its borders. These can be examined by consulting the Ordnance Surveys of 1898 and 1925, and through to the present day. The woodland was totally deciduous prior to the turn of the century, consisting mainly of mature trees of great antiquity, until the 1939-45 war when most of the oaks were felled, excepting those of consitituent woodlands on the periphery. The first signs of coniferisation began with a very small plantation on the 1925 O.S. revision in the centre of the wood. Nowadays the whole area, excepting the fringes, stands as a monument to the softwood industry.

This paper compares the qualitative and quantitative changes that have happened to the Macrolepidoptera. Only species that are resident have been used in this compilation, with known migratory species excluded from the comparison.

[1]The Macrolepidoptera are defined here as those species represented in volumes 1 and 2 of South's *Moths of the British Isles*

Methods of Comparison

Eastbourne is unusual in many respects, but none less than the fact that it has a detailed entomological history. The history of the Lepidoptera in the Eastbourne area has been covered by four separate publications from 1885 until the present date.

The first list covering the whole of Sussex, Jenner (1885), issued in the *Proceedings of the Eastbourne Natural History Society.* The present author extracted all records cited for Abbot's Wood and where species had been noted as common, or abundant throughout

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the county's woodlands. This paper comprised two lists supplied to J. H. A. Jenner by Messrs. G. T. Porritt and W. H. Tugwell, both of whom collected extensively in the area.

The second list of species for the county is that of Goss and Fletcher (1905), in the *Victorian County History of Sussex*. The species lists in this were largely drawn up by J. H. A. Jenner and W. H. B. Fletcher, although notable contributors were R. Adkin, J. Anderson, C. G. Barrett, W. M. Christy, A. C. Vine and many others. Again, the same technique was applied, of extracting records specifically relating to the area and those species which it was stated were general to the County's woodlands.

The third publication is perhaps the best known upon the area, if not one of the best produced local lists of its kind. Issued in parts between 1928 and 1934, the critical volume dealing with the moths was published in 1930, in the *Transactions of the Eastbourne Natural History, Photographic and Literary Society*. This dealt with the detailed distribution of all species, and Adkin noted clearly whether species were present at the time of writing. This fine list was accompanied by a long series of half-tone plates of the common species.

The last list to cover the wood was that of the present author, Hadley (1980). Records from Abbots Wood were abstracted but noteworthy lists for the woodlands were submitted by Messrs. C. Pratt, S. W. P. Pooles and M. Parsons.

This completed a series of publications documenting the history of this woodland from 1885 until the present day. To aid completeness of this report, data held at the Biological Records Centre at Monks Wood was abstracted and checked to make sure no noteworthy species had been overlooked.

For the purposes of this comparision, the lists of Jenner, Adkin and Hadley were used. The present writer decided against use of the *Victoria County History*, as all species covered by that list for the area in question are listed by Adkin (1930).

Results

In a paper of this sort, long species lists have only a limited use, so I decided to omit these from the published account for the sake of brevity, and also because, for the purposes of comparison, 'species totals' are of more significance. Table One shows the total number of species which were recorded by each author for the wood. The number of species found to occur in the wood in all three accounts (ie. 1885-1980) was 156.

In each list, there were a number of species which did not occur in either of the other two lists, and these may be accounted for by temporary residence, migration (note that well known migrants were excluded from the compilation wherever possible), overlooked species and species that had not been taxonomically separated. The total number of species in this category for each author was Jenner 44, Adkin 47 and Hadley 24.

Extinctions in the area were treated as species that were noted as being present by a particular author, but not recorded before or after. For example, Jenner recorded *Apamea sublustris* (Esp.), but the species was not recorded by either Adkin or Hadley, and *Apamea crenata* (Hufn.) which was noted by Jenner and Adkin, but not by Hadley. Thus, species lost between 1885 and 1930 totalled 44, and those lost between 1930 and 1980 equalled 95. Provision was made for species that were not recorded by Adkin but were noted by the other two authors: these species totalled 19. The total number of species recorded for the whole period 1885-1980 was 423 species.

Discussion

I do not intend to enter into a lengthy discourse on these results, but shall highlight some of the major factors.

A steady decline in the Macrolepidoptera of Abbots Wood is happening now, and has been going on for nearly a century, an acceleration in this trend has occurred since the 1930s. This decline is substantiated by three sets of data. Thus, the total number of species has declined (since 1930), the number of new arrivals has declined, and the number of species becoming extinct has increased from 44 to 95 during the two last recording periods.

Three major factors must be considered to have shaped these results: habitat loss, climate and changing collecting techniques. Trapping using Mercury Vapour light is an efficient and highly productive method of sampling a fauna, but it tends to make a lepidopterist slothful and lazy (speaking from experience), and traditional techniques such as sugaring and beating get forgotten so that many species are overlooked this way. For this reason, the writer feels the advantage of light for collecting has been offset by the loss of traditional techniques and has consequently lent only minimal bias to the results. Climate is as unpredictable as the beasts themselves. However, it is believed, and there seems to be a general concensus of opinion of this, that there has been a downturn in the climate this century. Lastly, and perhaps most significantly, the changing environment within the wood cannot be underestimated. The final blow to the woodland species came with the felling of the great stands of oaks just after the 1939-45 war, and latterly, afforestation by the Forestry Commission, resulting in the present day legacy of substantial areas of sterile conifer plantations and regularly mown rides.

Table 2 shows the species of Draft Red Data Book status which have occurred in the wood since recording began. It paints a depressing picture of loss. *Siona lineata* (Scop.) probably died out due to natural causes, change of climate or lack of suitable habitat for the larvae. The remainder of the species were recorded again by Adkin, and he turned up specimens of *Catocala promissa* (D. & S.) which was probably temporarily established in the area. However, fifty years after Adkin, not a single Draft Red Book species remains, for which habitat loss and climate must be blamed.

TABLE ONE

Histogram to show the total number of species recorded from Abbot's Wood by each author.

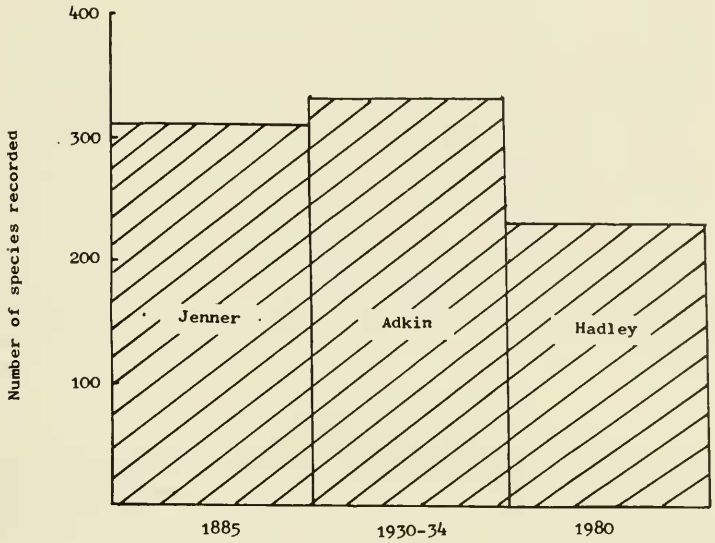

TABLE TWO

Table of draft Red Data Book species of Moths Recorded from Abbot's Wood, East Sussex.

Species	Red Data Book Category	Species recorded by:- Jenner	Adkin	Hadley
Siona lineata	1	+	-	-
Cucullia gnaphalii	1	+	+	-
Eriogaster lanestris	2	+	+	-
Hemaris fuciformis	2	+	+	-
Hemaria tityus	2	+	+	-
Jodia croceago	3	+	+	-
Momo alpium	3	+	+	-
Catocala promissa	3	-	+	-
Heterogenea asella	3	+	+	-
Cyclophora pendularia	3	+	+	-

+ indicates presence of species

The only recent success was the establishment of a colony of *Spargania luctuata* (D. & S.) during the 1960's and early 1970's, in the one remaining area of the woods that remains in a similar condition to when it was first constituted, namely that of the area known as Milton Hide. Encouraging signs have been the opening of the rides by the Forestry Commission and the clearence of some of the large tracts of Gorse that were becoming rampant. One cannot underestimate the negative effect of routine ride maintenance as it reduces floral diversity, upon which adult insects are dependent as well as pruning back severely sources of larval foodplants. A rotational system leaving wide ride margins would be less labour intensive and ecologically preferable. The clearing of many of the other areas together with the planting of young birch and other broadleaves has had beneficial results, with several species reoccuring after absences of many decades, species such as *Acronicta alni* (Linn.) and *Furcula bicuspis* (Borkh.). If this trend is continued the long-term future of the woodland is not so bleak as one might expect.

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PYRRHOCORIS APTERUS L. (HEM.: PYRRHOCORIDAE) IN DORSET. – In July 1979 I was brought two specimens of *Pyrrhocoris apterus* which had been taken at Kimmeridge on the Dorset coast. The only known permanent colony for this handsome black and red species is on Oar Stone Rock, a small island off the Devon coast, near Torquay, where it has been present for very many years. – S. C. S. BROWN, 158 Harewood Road, Bournemouth, Dorset.